

CLAIMS

What is claimed is:

- 5           1.       A blade clamp assembly for retaining a rotary blade on an arbor of a rotary tool, comprising:
- a blade washer for engaging the blade to hold the blade on the arbor; and
- a clamp assembly for being threaded into the arbor to clamp the blade washer
- 10                 against the blade, the clamp assembly including a planetary gear system for transmitting torque applied to the clamp assembly to the blade washer,
- wherein the planetary gear system multiplies the torque transmitted to the blade washer so that the torque transmitted to the blade washer is greater than the torque applied to the clamp assembly.
- 15           2.       The blade clamp assembly as claimed in claim 1, further comprising a lever extendable from the clamp assembly for increasing the amount of torque applied to the clamp assembly.
- 20           3.       The blade clamp assembly as claimed in claim 1, wherein the clamp assembly further comprises:
- a body;
- a bolt assembly retained within the body, the bolt assembly including a threaded bolt extending through the body for being threaded into the arbor and a sun
- 25                 gear;
- a planet gear engaged with the sun gear and the body for rotating the sun gear;
- and
- a cap coupled to the body and engaging the planet gear, the cap being turned for driving the planet gear;

wherein the planet gear rotates the sun gear for turning the bolt assembly

4. The blade clamp assembly as claimed in claim 3, wherein the body includes a keyed bottom surface and the blade washer comprises a keyed upper  
5 surface for engaging the keyed bottom surface of the housing.

5. The blade clamp assembly as claimed in claim 3, wherein the body comprises a ring gear for engaging the planet gear.

10 6. The blade clamp assembly as claimed in claim 3, wherein the cap includes a lever extendable from the cap for increasing the amount of torque applied to the cap.

7. The blade clamp assembly as claimed in claim 1, wherein the clamp  
15 assembly further comprises:

a body;

a planet gear engaged with the body;

a bolt assembly retained within the body, the bolt assembly including a threaded bolt extending through the body for being threaded into the  
20 arbor and a carrier for supporting the planet gear;

a cap coupled to the body, the cap including a sun gear for engaging the planet gear for driving the planet gear when the cap is turned,

wherein the sun gear rotates the planet gear for rotating the carrier and turning the bolt assembly

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8. The blade clamp assembly as claimed in claim 7, wherein the body includes a keyed bottom surface and the blade washer comprises a keyed upper surface for engaging the keyed bottom surface of the housing.

9. The blade clamp assembly as claimed in claim 7, wherein the body comprises a ring gear for engaging the planet gear.

10. The blade clamp assembly as claimed in claim 7, wherein the cap includes a lever extendable from the cap for increasing the amount of torque applied to the cap.

11. A rotary tool, comprising:  
a motor;  
10 an arbor rotated by the motor for supporting a rotary blade; and  
a blade clamp assembly for retaining a rotary blade on the arbor, the blade clamp assembly including:  
a blade washer for engaging the blade to hold the blade on the arbor; and  
a clamp assembly for being threaded into the arbor to clamp the blade washer  
15 against the blade, the clamp assembly including a planetary gear system for transmitting torque applied to the clamp assembly to the blade washer,  
wherein the planetary gear system multiplies the torque transmitted to the blade washer so that the torque transmitted to the blade washer is  
20 greater than the torque applied to the clamp assembly.

12. The rotary tool as claimed in claim 11, wherein the blade clamp assembly further comprises a lever extendable from the clamp assembly for increasing the amount of torque applied to the clamp assembly.

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13. The rotary tool as claimed in claim 11, wherein the clamp assembly further comprises:

a body;

a bolt assembly retained within the body, the bolt assembly including a

threaded bolt extending through the body for being threaded into the arbor and a sun gear;

a planet gear engaged with the sun gear and the body for rotating the sun gear;

and

5 a cap coupled to the body and engaging the planet gear, the cap being turned for driving the planet gear;

wherein the planet gear rotates the sun gear for turning the bolt assembly.

14. The rotary tool as claimed in claim 13, wherein the body includes a  
10 keyed bottom surface and the blade washer comprises a keyed upper surface for engaging the keyed bottom surface of the housing.

15. The rotary tool as claimed in claim 13, wherein the body comprises a ring gear for engaging the planet gear.

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16. The rotary tool as claimed in claim 13, wherein the cap includes a lever extendable from the cap for increasing the amount of torque applied to the cap.

17. The rotary tool as claimed in claim 11, wherein the clamp assembly  
20 further comprises:

a body;

a planet gear engaged with the body;

a bolt assembly retained within the body, the bolt assembly including a threaded bolt extending through the body for being threaded into the

25 arbor and a carrier for supporting the planet gear;

a cap coupled to the body, the cap including a sun gear for engaging the planet gear for driving the planet gear when the cap is turned,

wherein the sun gear rotates the planet gears for rotating the carrier and turning the bolt assembly

18. The rotary tool as claimed in claim 17, wherein the body includes a keyed bottom surface and the blade washer comprises a keyed upper surface for engaging the keyed bottom surface of the housing.

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19. The rotary tool as claimed in claim 17, wherein the body comprises a ring gear for engaging the planet gear.

20. The rotary tool as claimed in claim 17, wherein the cap includes a lever extendable from the cap for increasing the amount of torque applied to the cap.

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21. A blade clamp assembly for retaining a rotary blade on an arbor of a rotary tool, comprising:

means for engaging the blade to hold the blade on the arbor; and

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means for clamping the blade engaging means against the blade, the clamping means including means for transmitting torque applied to the clamping means to the blade engaging means,

wherein the torque transmitting means multiplies the torque transmitted to the blade engaging means so that the torque transmitted to the blade engaging means is greater than the torque applied to the clamping means.

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22. The blade clamp assembly as claimed in claim 19, further comprising means, extendable from the clamping means, for increasing the amount of torque applied to the clamping means.

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